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STUDIES IN THE UTILIZATION OF TELEVISION IN THE SCHOOLS, A FURTHER ANALYSIS OF DATA COLLECTED FOR THE NEW YORK STATE REGENTS EDUCATIONAL TELEVISION PROJECT.

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ADDITIONAL ANALYSES OF DATA COLLECTED IN AN EARLIER STUDY CONCERNING A 4-YEAR HISTORY OF EDUCATIONAL TELEVISION IN DIVERSE SCHOOL SYSTEMS WITHIN 3 STATES IS REPORTED. THE RESULTS HAVE BEEN PUBLISHED IN THE MONOGRAPH "UTILIZATION OF THE REGENTS EDUCATIONAL TELEVISION BROADCAST PROGRAMS." THE PRESENT REPORT IS IN TWO SECTIONS--(1) SOME STRUCTURAL ASPECTS OF TELEVISION IN ELEMENTARY SCHOOLS, AND (2) THE CLASSROOM USE OF TELEVISION ON ELEMENTARY SCHOOLS IN THE NEW YORK AREA IN RELATION TO CERTAIN SOCIAL, ECONOMIC, AND DEMOGRAPHIC ATTRIBUTES OF SCHOOL DISTRICTS. IN SECTION 1, THE MAJOR FINDING REPORTED WAS THAT THE PRESENCE OR ABSENCE OF A TELEVISION COORDINATOR DOES NOT MAKE ANY CONSISTENT DIFFERENCE IN THE UTILIZATION OF OR SATISFACTION WITH CLASSROOM TELEVISION. IN SECTION 2, THE MAJOR FINDINGS REPORTED WERE--(1) THE RATIO OF TV SETS TO TEACHERS AND PUPILS WAS HIGHLY RELATED TO THE NUMBER OF PROGRAMS REGULARLY VIEWED, (2) THE NUMBER OF SETS POSSESSED BY A SCHOOL WAS RELATED TO THE WEALTH OF THE COMMUNITY, AND (3) THE USE OF TV SETS WAS NOT BEING INCORPORATED TO OVERCOME TEACHER SHORTAGES. (JC)

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# STUDIES IN THE UTILIZATION OF TELEVISION IN THE SCHOOLS

## A further analysis of data collected for the New York State Regents Educational Television Project

By Dr. Abram Jaffe and Stanley Henshaw

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## PREFACE

In the Spring of 1962, the Bureau of Applied Social Research collected questionnaires from 3,295 school principals, and interviewed principals and teachers in 206 schools, concerning their use of the programs broadcast by the New York State Regents Educational Television Project. These programs had been broadcast for a four year period to an area containing an anormous number of diverse school systems in three states. The response to them offered a major test of the utility of broadcast television for classroom use. The main results of the study are reported in the monograph, Utilization of the Regents Educational Television Broadcast Programs, by Kenneth J. Lenihan, Herbert Menzel, and Sydney S. Spivack.

The present report presents additional analyses of data collected in that study. Section I by Stanley Henshaw looks into some structural aspects of television use in elementary schools: the factors associated with having a "TV coordinator" in the school, the structure of control over who watches what programs, and the relationship between the principal's orientation toward television and that of the teachers in the same school. One striking finding is that the presence or absence of a television coordinator does not make any consistent difference in utilization of or satisfaction with classroom television.

Section II by Dr. Abram Jaffe examines in some detail the relationship found in public schools outside New York City between the amount of TV equipment, the geographical and socio-economic characteristics of school districts, and the utilization of broadcast television. The number of sets possessed by a school (relative to its number of teachers) is found to be strongly related

to the wealth of the community and the extent to which non-public schools share in the educational burden, and negatively related to the relative size and rate of increase of the child population of the district. The ratio of sets to teachers and pupils is very highly related to the number of programs regularly viewed. There is however no indication that television is being used to overcome teacher shortages in these public schools, and once a district has television there seems to be no relation between its socio-economic characteristics and the extent of using television in the classroom.

The findings of the present study, like the original analysis of the data, have a certain inconclusiveness which characterizes most other studies of dissemination of innovations in education. New techniques appear and spread; they become a small part of the process of education at many (but not all) schools; and it is not easy to find what determines the adoption and extent of use of innovations which form one more element in the battery of methods used by the schools. Where studies are made of the effects of new methods (which was not attempted in this study of classroom television), they also tend to be inconclusive or inconsistent. Perhaps what is needed is a much better basic understanding of the social processes of education, both those which go on in the schools and those which go on in the family and community. When basic research has revealed these social processes, we will then be able to see how particular devices or forms of organization fit into them, and why so many changes are initiated only to produce marginal results, or to attain partial utilization.

The original study of the utilization of the Regents educational television program was conducted under a grant from the Ford Foundation to the Board of Regents of the University of the State of New York. The further

analysis reported here was made possible by a grant from the Office of Education under the National Defense Education Act, Title VII. We are indebted to both these agencies for their financial support, and to the teachers and principals who gave their time to answer our questions.

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TABLE OF CONTENTS


page

I. SOME STRUCTURAL ASPECTS OF TELEVISION IN ELEMENTARY SCHOOLS -- by Stanley Henshaw . . . . . 1

Introduction . . . . . 1
The TV Coordinator . . . . . 3
Which Schools Have TV Coordinators? . . . . . 8
The Characteristics of Teacher-Coordinators . . . . . 12
Coordinators' Attitudes . . . . . 15
The Presence of a Coordinator and Teachers' Use and Evaluations of TV . . . . . 17
Decision-Making . . . . . 20
TV Coordinators and Central Control . . . . . 20
Which Schools Give Teachers Control over Television Use . . . . . 24
The Relation of Principals' and Teachers' Orientation to Classroom Television . . . . . 29
Conclusion . . . . . 37

II. THE CLASSROOM USE OF TELEVISION IN ELEMENTARY SCHOOLS IN THE NEW YORK AREA, IN RELATION TO CERTAIN SOCIAL, ECONOMIC, AND DEMOGRAPHIC ATTRIBUTES OF SCHOOL DISTRICTS -- by Dr. Abram Jaffe . . . . . 38

Introduction . . . . . 38
Purpose
The Data
Limitations of the Data

Findings . . . . . 43
Number of teachers per television set
Extent of classroom use of television
Programs viewed

Conclusions . . . . . 61

Appendix Table A . . . . . 64

# I.

# SOME STRUCTURAL ASPECTS OF TELEVISION USE IN ELEMENTARY SCHOOLS

## Introduction

The organization of television facilities in elementary schools and the particular characteristics of the schools and their principals will inevitably affect the acceptance and use of educational television by teachers. There is wide variation between schools as to the attitudes of principals toward television, the degree of administrative control over its use, and the number and positions of staff members with special duties in connection with television. The purpose of this study is to describe these variations and explore their relations to teachers' attitudes and behavior with respect to television.

The first and most detailed section describes a new position that has emerged with the advent of educational television, that of "TV coordinator." Is this role in the process of developing into a new profession, much as that of "guidance counsellor" developed early in this century? What are its effects on the use of television and the attitudes of teachers? These are some of the questions we attempt to answer here.

Next, we try to indicate which schools and principals exert the most control over their teachers' use of television. It was hypothesized that the more elaborate the school's organization of television services, the more the school's administration would control the choice of classes to use TV and the programs they would watch.

Finally, we look at the relation between certain characteristics of principals and teachers in the same schools. Do teachers tend to share the

attitudes of their principals? Is television used more where the principal thinks highly of its usefulness and of the quality of the programs available?

This study is based on data collected by Lenihan and Menzel* in a larger study of educational TV in the metropolitan area. Of use to us were interviews with principals and teachers in 55 elementary schools in New York City and 54 in four neighboring New York counties -- Nassau, Suffolk, Westchester, and Rockland. The schools were randomly chosen from all elementary schools which use classroom television in the two areas. In most schools, interviews were conducted with two teachers who use television and one who does not use television. Unless otherwise specified, our findings refer only to the teachers who use television, called "watching teachers." The interview guides and details of the interview and sampling procedures can be found in the appendices of Part II of the Lenihan-Menzel report.

The elementary schools in the four New York counties proved to be markedly different from the New York City sample in many significant respects. Consequently, in most cases we shall present the data separately for the two sets of schools. In most cases we will report only relationships that were found in both groups of schools, but sometimes it will be necessary to discuss the results for the two sets of schools separately.

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*Kenneth J. Lenihan, Herbert Menzel, and Sydney S. Spivack, Utilization of the Regents Educational Television Broadcast Programs, The University of the State of New York, The State Education Department, September, 1963.

## The TV Coordinator

A new position has been created in many elementary schools that use television -- that of TV coordinator. In many cases, the pre-existing role of "audio-visual coordinator" was simply expanded to included functions relating to television; in others, a staff member was assigned special duties connected with television but was given no special title. We will refer to any person with special TV duties as a "TV coordinator," whether or not he has a title or other audio-visual duties. Later we will restrict the term to those cases in which he seems to be of central importance to the organization of TV use.

The principal of each school was asked, "Who on your staff has any special duties in connection with TV?" and "What are his chief duties in connection with TV?"* Table 1 shows the number of people in each school who have special TV duties and the prevalence of the different duties.

Almost all the schools in New York City and about half in the four New York counties assign special TV duties to at least one staff member. Thus most of the schools in our sample have found some division of labor with respect to television desirable. However, New York City schools have proceeded much further in this direction than the others, probably indicating more elaborate internal organization generally in the city schools. Other related differences between New York City schools and the others will be evident in the tables below.

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*The full text of the interview schedules is given in Lenihan, Menzel, and Spivack, op. cit.

Table 1

Numbers and duties of staff members with special TV duties

| | Per cent of principals in: New York City | Four New York Counties |
|---|---|---|
| a. The number of staff members with special duties in connection with TV | | |
| None | 7% | 52% |
| 1 | 49 | 35 |
| 2 | 35 | 7 |
| 3 or more | 9 | 6 |
| | 100 (55) | 100 (54) |
| b. The most important duty mentioned (listed in order of importance) | | |
| Activities which may influence choice of program content; e.g. recommends programs, informs teachers of programs shown, answers teachers' questions about suitability of programs, obtains bulletins for teachers | 42% | 40% |
| Participates in assignment of equipment and rooms | 16 | 16 |
| Vague designation of duties which may include those above | 18 | 12 |
| Distributes schedules of programs | 12 | 12 |
| Supervises maintenance, custody or moving of equipment | 12 | 20 |
| | 100 (50) | 100 (25) |

Table 1b. gives the most important duty mentioned for those schools which assigned special TV duties. ("Importance" is defined by the order in

which the duties are listed.) About 40% of the TV coordinators perform some task that might be expected to influence teachers' choices of programs. This 40% may also perform the other common functions of TV coordinators, viz. assigning equipment and rooms, distributing schedules of programs, and supervising the maintenance, custody, or moving of equipment. About one fourth of the coordinators have no duty more important than distributing program schedules or looking after the physical condition of the sets.

Table 2

Who the TV coordinator is

| | Per cent of schools in: | |
|---|---|---|
| | New York City | Four N.Y. Counties |
| The normal position of the person with the most important TV duties*: | | |
| Principal | 2 | --- |
| Assistant principal | 45 | 13 |
| Other person in the principal's office | 2 | 8 |
| A special teacher | 4 | 4 |
| A regular classroom teacher | 47 | 63 |
| A committee | --- | 4 |
| Other | -- | 8 |
| | 100 | 100 |
| Total cases | (51) | (24) |

*Based on principals' responses.

Who is the TV coordinator? Table 2 indicates that in most cases the special TV duties are given either to a regular classroom teacher or to the assistant principal. In New York City the split is about fifty-fifty; in the four New York counties, the assistant principal is much less likely to be given the TV duties. Again we see indications of the greater degree of centralization of the New York City schools.

When the assistant principal is assigned TV duties, these are usually important ones, i.e. duties likely to influence the choice of programs (Table 3).

Table 3

TV coordinators who are assistant principals compared to TV coordinators who are regular teachers

| | Per cent of schools in New York City | | Per cent of schools in 4 N.Y. Counties | |
|---|---|---|---|---|
| | Where the TV coordinator is | | | |
| | assistant principal | regular teacher | assistant principal | regular teacher |
| The TV coordinator's duties include activities that might influence the choice of program content . . . . . | 61% | 22% | (3) | 20% |
| The TV coordinator's duties do not include such activities . | 39 | 78 | --- | 80 |
| | 100 | 100 | --- | 100 |
| | (23) | (23) | (3) | (15) |

The TV coordinator himself was interviewed in schools where the principal said the TV coordinator "would be the best person to talk to" about the "viewing schedule and how it is set up." For the purposes of this report, it is

assumed that these are the schools in which the TV coordinator is most important. This assumption rests primarily on its intrinsic plausibility, but additional evidence is presented in Table 4, which shows that were the TV coordinator was interviewed, he was more likely to have important duties and was more likely to be the assistant principal.

Table 4

Schools where TV coordinator is interviewed compared to schools where no coordinator is interviewed

| | Per cent of schools in | | | |
|---|---|---|---|---|
| | New York City | | 4 N.Y. Counties | |
| | Where TV coordinator is | | | |
| | interviewed | not interviewed | interviewed | not interviewed |
| a. The TV coordinator's duties include activities that may influence the choice of program content . . . . . | 47% | 21% | 42% | 12% |
| The TV coordinator's duties do not include such activities, or no coordinator reported in school . . | 53 | 79 | 58 | 88 |
| b. The assistant principal has important TV duties . . . . . | 53 | 21 | 17 | 2 |
| The assistant principal does not have important TV duties . . . . . | 47 | 79 | 83 | 98 |
| | 100 | 100 | 100 | 100 |
| Total number of cases | (36) | (19) | (12) | (42) |

The interviews with the TV coordinators provided some additional information (not shown in a table) about their roles. About half of them have the

formal title "Audio-Visual Coordinator," which suggests that this older position has been enlarged to include TV duties. One eighth have the title "TV Coordinator," and most of the rest have no title. Few coordinators spend more than three hours a week on audio-visual (including TV) work, and some work only at the beginning of each term. The position almost never rotates, and the same individual has usually held the position for two or more years.

Which Schools Have TV Coordinators?

It was expected that the presence or absence of a TV coordinator (that is, a coordinator important enough to be interviewed) could be partly explained by certain characteristics of the school. Several of these characteristics involve the TV sets -- the number of sets in the school, whether the sets are moved between rooms or kept in one special room, and the proportion of floors having sets. Table 5 indicates that the relationship is not a simple one, with New York City and the four New York counties showing opposite patterns. In New York City, a coordinator is more often found in schools with only one TV set, where TV is used in one special audio-visual room or auditorium, and where less than half the floors have sets. Of course these characteristics are highly inter-correlated.

In the four New York counties, coordinators are more common in schools with several TV sets and in schools where the sets are moved from classroom to classroom. These are probably the better quality schools -- Jaffe found that schools in school districts with more economic resources have more television sets.* These districts are also likely to have higher quality schools. (In

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*Abram Jaffe, "The Classroom Use of Television in Elementary Schools in the New York Area, in Relation to Certain Social, Economic, and Demographic Attributes of School Districts," Part II of this report.

New York City, the schools in the wealthier areas do not necessarily have more TV sets because the school system makes an effort to equalize the number of sets in different schools.)

Table 5

The presence of a TV coordinator related to the number and arrangement of television sets

| | Per cent which have coordinators, of schools in: New York City | Four N.Y. Counties |
|---|---|---|
| **a. Number of TV sets in the school** | | |
| One | 79% (14) | 11% (19) |
| Two | 61 (28) | 18 (17) |
| Three or more | 62 (13) | 39 (18) |
| **b. Physical set-up for using TV sets** | | |
| Used in special room, auditorium, etc. | 72 (25) | 11 (18) |
| Moved from classroom to classroom | 57 (7) | 35 (17) |
| Used by one class in its own room | (3) | (4) |
| Other | (4) | (1) |
| Equally divided among above categories | 56 (16) | 21 (14) |
| **c. Proportion of floors with TV sets** | | |
| Less than half | 78 (23) | 14 (7) |
| Half or more | 57 (30) | 19 (42) |

A second group of factors related to the presence of coordinators is shown in Table 6. Evidently the larger the school system the more likely a school is to have a coordinator. This suggests that the more elaborate organization necessary in a large school system also affects the internal

organization of its component schools. Table 6 also indicates that where the principal feels that the school system policy favors the use of television, he is more likely to appoint a coordinator. This can perhaps best be understood in conjunction with Table 7a. Together they suggest that when a principal does not favor the introduction of television but feels pressure from the school system to do so, he is likely to put the management of television arrangements into the hands of a coordinator.

Table 6

Presence of a TV coordinator related to characteristics of the school system

| | Per cent of schools which have coordinators |
|---|---|
| **a. Number of schools in school system** | |
| 1 to 5 schools | 15% (25) |
| 6 to 9 schools | 24 (21) |
| 10 or more schools | 38 (8) |
| New York City | 65 (55) |

| | Per cent which have coordinators, of schools in: | |
|---|---|---|
| | New York City | Four N.Y. Counties |
| **b. System policy*** | | |
| System recommends regular TV use | 67 (36) | 28 (18) |
| System gives option or has taken no action | 56 (16) | 17 (35) |

*According to the principals.

Table 7

Characteristics of principals and the presence of a coordinator

| | Per cent with coordinators, of schools in: New York City | Four N.Y. Counties |
|---|---|---|
| a. Was principal in favor of regular TV viewing at the time of its first use? | | |
| In favor . . . . . | 59 (39) | 18 (40) |
| Had reservations, undecided, or opposed . . | 81 (16) | 36 (14) |
| b. Has principal had courses on audio-visual techniques? | | |
| Yes . . . . . | 68 (38) | 24 (40) |
| No . . . . . | 59 (17) | 23 (13) |
| c. When first became principal | | |
| 1950 or later . . . . . | 70 (46) | 26 (35) |
| Before 1950 . . . . . | 43 (7) | 16 (19) |

If the role of TV coordinator is being developed around a new body of technical knowledge, one would expect the existence of a coordinator in a school to be related to the principal's acquaintance with that knowledge. Specifically, one might expect that principals who have taken courses in audio-visual techniques would be more likely to appoint coordinators. Table 7b. does not bear out this expectation -- there is no relationship for the principals outside New York City, and within the city the difference is in the expected direction but is not large enough to be meaningful, given the small size of the sample. This bit of evidence has limited value, however, for two reasons: (1) most of the principals would have taken their audio-visual courses before

television became a factor in elementary education, and (2) principals may keep abreast of developments without having taken courses in the area. Another finding bearing on the same question is that the principals who have held their positions for more than twelve years are less likely to have TV coordinators. Again the percentage differences are not statistically significant but are supported by the fact that the difference is found both in New York City and the other schools.

We suggested above that in the four New York counties, the higher quality schools are more likely to have TV coordinators. This interpretation is strengthened by the finding that teachers in schools with coordinators more often have their master's degrees and are slightly older (Table 8). These differences do not hold for teachers in New York City schools.

The Characteristics of Teacher-Coordinators

Many of the TV coordinators are assistant principals and a few hold other special positions such as guidance teacher or administrator in the principal's office. About half, however, are regular classroom teachers. But which classroom teachers are appointed to the position of TV coordinator? A comparison of the teacher-coordinators with other teachers in the same schools might shed some light on the nature of the role. Is it a responsible position to which the most prestigious teachers are appointed, or is it an undesirable chore forced upon the lowest-ranking teacher? Table 9 indicates that the former is more nearly the case; the teacher-coordinators more often have master's degrees, and men are more likely than women to be chosen for the position.

Table 8

Teachers' backgrounds in schools with and without coordinators

| | Per cent of watching teachers | | | |
|---|---|---|---|---|
| | New York City | | Four N.Y. Counties | |
| | School has coordinator | No coordinator | School has coordinator | No coordinator |
| a. Teacher's highest degree | | | | |
| MA | 34% | 29% | 57% | 34% |
| BA | 66 | 71 | 43 | 66 |
| | 100 (67) | 100 (31) | 100 (14) | 100 (65) |
| b. When started teaching | | | | |
| Before 1950 | 37 | 42 | 57 | 37 |
| 1950 or later | 63 | 58 | 43 | 63 |
| | 100 (65) | 100 (31) | 100 (14) | 100 (65) |

Table 9

Which teacher becomes a TV coordinator

| | TV coordinators who are regular teachers | Other regular teachers interviewed in the same schools |
|---|---|---|
| a. Sex | | |
| Male | 39% | 6% |
| Female | 61% | 94 |
| | 100 | 100 |
| b. Highest degree | | |
| MA | 58 | 38 |
| BA | 42 | 62 |
| | 100 (19) | 100 (38) |

The question was raised above as to whether the TV or audio-visual coordinator's role is in the early stages of development into a professional position based on a specialized body of technical knowledge. If this is the case, we would expect the nucleus of this specialized knowledge to be taught in courses on audio-visual techniques. Presumably the teacher-coordinators will be the teachers most familiar with this body of knowledge. The data, however, do not bear out this prediction -- the teacher-coordinators are no more likely to have taken courses in audio-visual techniques than the other teachers in the same schools. The role of TV coordinator is a relatively new role more likely to be present in schools with principals who have not held that position for many years and in the better schools (outside New York City), but not yet related to exposure to specialized knowledge during training.

Table 10

Teacher-coordinators compared to other teachers with respect to audio-visual courses

| Has teacher taken courses in audio-visual techniques | TV coordinators who are regular teachers | Other regular teachers interviewed in the same schools |
|---|---|---|
| Yes . . . . . | 53% | 53% |
| No . . . . . | 47 | 47 |
| | 100 | 100 |
| Total number of cases | (19) | (38) |

Coordinators' Attitudes

Are the coordinators' evaluations of classroom television different from the evaluations of principals and teachers? We might expect that coordinators would have more favorable attitudes since they are personally identified with the use of television. As a consequence, coordinators would be likely to encourage the greater use of television.

Table 11 allows a comparison of the attitudes of TV coordinators, principals, and watching teachers in the same schools. Clearly the figures do not bear out our expectations -- the overall attitudes of the three groups are remarkably similar. In most groups, between two-thirds and three fourths of the respondents evaluate classroom TV and the educational programs as "useful" and "good" without qualification. The coordinators closely match the watching teachers except in two respects -- they mention fewer good points of TV and more in-school obstacles to its maximum usefulness. This may simply reflect a greater awareness of TV's special problems, which in many cases it is their responsibility to solve. Compared to the principals, the coordinators evaluate the Regents' programs (the educational programs locally available) slightly more favorably but are identical in their appraisal of the usefulness of television in the classroom.

The principals' evaluations are also similar to those of the watching teachers, except that they made a larger number of specific comments, both favorable and unfavorable, about classroom TV and the Regents' programs. This probably reflects nothing more than that a high-ranking individual is freer and more sophisticated in expressing evaluations and criticisms.

Table 11

Attitudes of TV coordinators, principals, and watching teachers compared

| | In the same schools: TV coordinators | Principals | Watching teachers |
|---|---|---|---|
| **a. Usefulness of TV in the classroom** | | | |
| Useful -- emphatic | 18% | 17% | 26% |
| Useful | 58 | 63 | 48 |
| Useful, but...; not very useful | 24 | 21 | 26 |
| | 100 | 101 | 100 |
| **b. What do you think of the Regents' programs?** | | | |
| Good -- emphatic | 26% | 10% | 19% |
| Good, fine | 42 | 45 | 49 |
| Good, but...; some good, some bad; fair; poor | 32 | 45 | 32 |
| | 100 | 100 | 100 |
| **c. Specific comments about classroom TV** | | | |
| In-school obstacles to maximum usefulness of TV -- number mentioned per person | 1.5 | 1.7 | 1.1 |
| TV's good points -- number mentioned per person | 2.0 | 2.5 | 2.6 |
| TV's bad points -- per cent mentioning one or more | 29% | 40% | 31% |
| Suggestions for improving the Regents' programs -- number mentioned per person | 1.5 | 2.2 | 1.5 |
| Total number of cases | (48) | (48) | (82) |

We have not presented a table showing the particular obstacles, suggestions, and good and bad points mentioned, but here again the coordinators, principals, and teachers are remarkably similar. One understandable exception is that coordinators and principals are more likely than teachers to say that one obstacle to TV's usefulness is the inadequate training and class preparation of the teachers who use television.

To summarize, the attitudes of TV coordinators are not on the whole very different from the attitudes of principals and teachers in the same schools.

## The Presence of a Coordinator and Teachers' Use and Evaluations of TV

What effect does a TV coordinator have on the teachers in his school? It is difficult to make definite statements about the cause and effect relationship, but one can see which characteristics of teachers are associated with the presence of a coordinator.

Looking at behavior first, we can see that the measured aspects of the teachers' use of TV have very little relationship to the presence of TV coordinators;

Table 12

Schools with and without coordinators:
teachers' use of TV compared

| | New York City | | Four N.Y. Counties | |
|---|---|---|---|---|
| | School has coordinator | No coordinator | School has coordinator | No coordinator |
| Per cent of teachers who watch more than one program . . . . . | 46% | 41% | 43% | 40% |
| Per cent who watch regularly . . . . . | 68% | 78% | 64% | 69% |
| Per cent who watched last week . . . . . | 54% | 59% | 67% | 64% |
| Preparation -- Per cent who rarely or never prepare . . . . . | 21% | 3% | 7% | 29% |
| Number of mentions per teacher of methods of preparing class, other than merely telling subject of program . . . | .54 | .55 | .64 | .52 |
| Total cases | (68) | (32) | (14) | (65) |

Teachers in schools with and without coordinators watch about the same number of programs, are about equally regular in their watching, and are equally likely to have seen programs "last week." This is not surprising in the light of the finding that the coordinators do not evaluate television more highly than do watching teachers.

The coordinators do apparently have one important effect in the four New York counties -- here the teachers with coordinators are more thorough in preparing their classes for each TV program. In these schools the coordinators apparently encourage more careful use of television as a teaching aid, but one cannot rule out the possibility that some other aspect of the climate of these

schools is responsible for the difference. The relationship does not hold for schools in New York City.

With respect to attitudes, the differences are small and not in the expected direction:

Table 12A

Schools with and without coordinators:
teachers' evaluations compared

Per cent of watching teachers

| | New York City | | Four N.Y. Counties | |
|---|---|---|---|---|
| | School has coordinator | No coordinator | School has coordinator | No coordinator |
| a. Usefulness of TV in the classroom | | | | |
| Useful -- emphatic . . . | 30% | 44% | 7% | 21% |
| Useful . . . . . | 45 | 22 | 57 | 45 |
| Useful, but...; not very useful . . . . . | 24 | 34 | 36 | 33 |
| b. Evaluation of Regents' programs | | | | |
| Good -- emphatic . . . . | 18 | 38 | 21 | 31 |
| Good, fine . . . . . | 54 | 47 | 29 | 38 |
| Good, but...; some good, some bad; fair; poor . | 28 | 16 | 50 | 31 |
| | 100 | 101 | 100 | 100 |
| Total number of cases | (68) | (32) | (14) | (65) |

In schools with coordinators teachers are slightly more critical of classroom television and the educational programs than in schools without coordinators. It seems unreasonable to interpret this as the direct influence of the coordi-

nators, who do not have markedly negative attitudes. It is more likely that the teachers in schools with coordinators are more sophisticated and have higher standards against which to judge the effect of television.

Another important aspect of the effect of the presence of coordinators is the question of whether they restrict the teachers' autonomy in the use of television. The question of decision-making was felt to be important enough to be treated in a separate section below.

## Decision-Making

One key aspect of the organization of television use is the degree of administrative control over the decision as to which classes will use television and what programs they will watch. Which schools maintain central control over these decisions? What relation do the TV coordinators have to central control? What is its effect on teachers' use of and attitudes toward television?

### TV Coordinators and Central Control

The appointment of a TV coordinator represents an increase in the bureaucratization of a school, since elaborate division of labor is one aspect of bureaucracy. Normally the growth of bureaucracy is accompanied by (1) an increase in the degree of central control necessary for the coordination of the various organizational activities, and (2) a decrease in the degree of flexibility of the organization, i.e. the degree to which the members are free to deviate from the normal pattern of behavior. On these grounds we expected that schools with TV coordinators would allow their teachers less freedom in deciding whether to use television and which programs to watch.

Table 13 indicates that our expectations were not confirmed. In the four New York counties there is no significant relationship, and in New York

City the relationship is the opposite of that expected. That is, in New York City schools where there is a coordinator, the teachers have more control over the choice of programs than in schools without a coordinator. It was thought that Table 13 might be misleading because the questions dealing with central control were asked the coordinators in schools where the coordinator was interviewed; elsewhere the principal was the respondent. Table 14, however, shows the same relationship where the teachers themselves answer the questions relating to control over television use.

Table 13

Coordinators' relation to administrative control over television use

Per cent of schools

| | New York City | | Four N.Y. Counties | |
|---|---|---|---|---|
| | School has coordinator | No coordinator | School has coordinator | No coordinator |
| a. Who selected the particular programs a class watches* | | | | |
| The class teacher alone . . . . . | 29% | 18% | 70% | 78% |
| The class teacher after communicating with administration, TV coordinator, or other teachers . . | 57 | 41 | 20 | 22 |
| Administrative officers . . . . . | 14 | 41 | 10 | -- |
| | 100 (28) | 100 (17) | 100 (10) | 100 (37) |
| b. Does teacher clear decisions to deviate from the viewing schedule with coordinator or the office?* | | | | |
| No . . . . . | 64 | 33 | 83 | 91 |
| Yes . . . . . | 36 | 67 | 17 | 9 |
| | 100 (33) | 100 (18) | 100 (12) | 100 (42) |

*Information was obtained from the TV coordinators where these were interviewed; otherwise it was obtained from the principals.

Table 14

Coordinators' relation to teachers' perception of administrative control

| Teachers' responses: | Per cent of watching teachers: New York City — School has coordinator | New York City — No coordinator | Four N.Y. Counties — School has coordinator | Four N.Y. Counties — No coordinator |
|---|---|---|---|---|
| a. Who selected the particular programs a class watches | | | | |
| The class teacher alone . . . . . | 44% | 23% | 64% | 66% |
| The class teacher after communicating with administration, TV coordinator, or other teachers . . | 31 | 39 | 36 | 19 |
| Administrative officers; other . . | 25 | 39 | -- | 15 |
| b. Who decided which class would use television | | | | |
| The class teacher alone . . . . . | 30 | 7 | 43 | 48 |
| The class teacher after communication with administration, TV coordinator, or other teachers . . | 33 | 40 | 43 | 39 |
| Administrative officers; other . . | 37 | 53 | 14 | 13 |
| | 100 (64) | 100 (30) | 100 (14) | 100 (64) |

One can speculate about the reasons for the above findings; for example, it seems possible that the stronger the professional orientation of an elementary school, the more likely it is to have a TV coordinator and to give its teachers full control over television use. The data are not adequate to establish a definite explanation, but one implication of the finding is clear -- the establishment of the position of TV coordinator need not restrict the teachers' control over the use of television. In more general terms, increasing the division of labor in a professional organization need not affect the autonomy of the professionals. This is not to say, of course, that the TV coordinators do not in fact influence the teachers' choice of programs through personal persuasion. It simply means that elaboration of the formal organization need not result in the centralization of <u>formal</u> power.

## Which Schools Give Teachers Control over Television Use

It is of interest to note which schools tend to allow their teachers more autonomy with respect to television. Most of the data, however, shows no clear pattern, and many of the characteristics of schools and principals have opposite effects in New York City and the four New York counties. For example, in New York City more autonomy is allowed by female principals; in the other four counties more is allowed by male principals. Results of this nature are difficult to interpret and have not generally been reproduced here. In such cases there is a greater likelihood that the result occurred by chance than were the differences in the two sets of schools are in the same direction.

Nevertheless, there are two differences that are significant and understandable, shown in Table 15. The first of these is that teacher autonomy

is more common in schools with several television sets. This has several plausible interpretations -- (1) it is harder to keep track of teachers when there are several sets which can be simultaneously in use, (2) one reason for restricting a teacher's range of choice is that several teachers may want to watch programs at the same time where there are few sets, and (3) better quality schools have more TV sets and allow their teachers more freedom.

Table 15

Characteristics of schools which allow teacher autonomy

| | Per cent of watching teachers | | | |
|---|---|---|---|---|
| | New York City | | Four N.Y. Counties | |
| Who decides which programs a class watches*: | Teacher alone | Other | Teacher alone | Other |
| a. Number of TV sets in school | | | | |
| One | 11% | 25% | 24% | 50% |
| Two | 55 | 52 | 34 | 28 |
| Three or more | 33 | 23 | 42 | 22 |
| b. Teacher's highest degree | | | | |
| MA | 47 | 25 | 46 | 24 |
| BA | 53 | 75 | 54 | 76 |
| | 100 (18) | 100 (65) | 100 (50) | 100 (18) |

*Based on responses of principals (or coordinators where these were interviewed).

The last explanation is partly conformed by the second part of Table 15 -- the schools which allow more teacher autonomy have a larger proportion of teachers with master's degrees and are therefore presumably the better schools. This finding is gratifying in its implications for both the schools involved and bureaucracies generally. For the particular schools, it indicates that where the teachers are best trained they are given the most professional autonomy. For bureaucracies it shows that an organization as large as the New York City school system can be flexible enough to give more authority to those participants who are qualified for it. When the training of the participants of an organization is upgraded, the degree of central control can be, and sometimes is, reduced.

One other difference between schools in New York City with and without teacher autonomy is large enough to warrant presenting here, though it is not easily explained:

Table 16

Principals who allow teachers autonomy

| Policy of school system, according to principal | Per cent of principals who say teacher alone decides which program to watch: New York City | Four N.Y. Counties |
|---|---|---|
| TV should be used regularly . . . . . | 45% (20) | 57% (7) |
| Recommends regular use of TV . . . . | 38 (16) | 91 (11) |
| System gives option or has taken no action . . . . . | 13 (15) | 80 (35) |

In New York City, teachers are more autonomous in schools in which the principal responded that the school system recommends or encourages the use of television.

The opposite relationship, though less clear-cut, appears to hold for the schools outside New York City. This is another indication that different processes are at work in the two sets of schools.

The "autonomous" teachers are compared in Table 17 to those allowed less autonomy. On the whole the differences are relatively minor. In New York City the autonomous teachers find television somewhat less useful and are more critical of the Regents' programs (figures not shown). In the schools outside New York City, the teachers are more thorough in preparing their classes for the programs, probably because these are higher quality teachers. To test this hypothesis, we ran additional tables (not shown) which indicate that teachers with MA's prepare their classes more. However, this does not explain why the effect should not be present in New York City. Table 17c. records the teachers' perceptions of the reasons they watch a particular program. As one would expect, the teachers in the schools which allow autonomy are able to give more reasons and do not as often say simply that the program is appropriate to the level of the pupils. The autonomous teachers better understand why they are using a particular program and can then presumably make better use of it.

Table 17

Attitudes of teachers who are autonomous

| | Per cent of watching teachers | | | |
|---|---|---|---|---|
| | New York City | | Four N.Y. Counties | |
| | Who decided which programs a class watches*: | | | |
| | Teacher alone | Other | Teacher alone | Other |
| a. How useful teacher thinks television is | | | | |
| Useful -- emphatic . . . . . | 25% | 40% | 18% | 17% |
| Useful . . . . . | 38 | 34 | 46 | 39 |
| Useful, but...; not very . . . . | 38 | 26 | 36 | 44 |
| b. What teacher does to prepare the class for each program (teacher can give more than one answer) | | | | |
| Nothing . . . . . | 18 | 9 | 12 | 39 |
| Tells class what will be on . . | 41 | 43 | 44 | 28 |
| Tells class what to look for; explains terms; brings in materials; assigns homework in advance . . . . . | 41 | 49 | 58 | 44 |
| c. The reasons a particular program was chosen (teacher can give more than one answer) | | | | |
| Most appropriate to pupils' level of advancement . . . . . | 28 | 31 | 16 | 44 |
| Wish to emphasize the field, teaching methods . . . . . | 39 | 25 | 46 | 28 |
| TV is especially good in this field . . . . . | 28 | 20 | 30 | 17 |
| Hours fit class schedule . . . . | 11 | 2 | 4 | -- |
| Generalities only . . . . . | 6 | 11 | 12 | 6 |
| No reasons given . . . . . | 6 | 11 | 6 | 11 |
| Number of cases . . . . . | (18) | (65) | (50) | (18) |

## The Relation of Principals' and Teachers' Orientations to Classroom Television

We have considered the effects of the TV coordinator and the centralization of control over television use, but we have not looked at the relation of the principals' attitudes and perceptions to those of the teachers in the same school. In this section we look at the teacher in relation to his principal's evaluation of television and perception of the degree of teacher autonomy.

Table 18 allows a comparison of the tendencies of teachers and principals to see teachers as autonomous:

### Table 18

Teachers' autonomy: comparison of the perceptions of teachers and principals

| | Per cent of watching teachers | |
|---|---|---|
| | New York City | Four N.Y. Counties |
| a. Principal's perception: who chooses program | | |
| Teacher alone . . . . . | 21% | 73% |
| Other . . . . . | 79 | 27 |
| | 100 (80) | 100 (66) |
| b. Teacher's perception: who chooses program | | |
| Teacher alone . . . . . | 38% | 73% |
| Other . . . . . | 62 | 27 |
| | 100 (80) | 100 (66) |

## The Relation of Principals' and Teachers' Orientations to Classroom Television

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### Table 18

Teachers' autonomy: comparison of the perceptions of teachers and principals

| | Per cent of watching teachers | |
|---|---|---|
| | New York City | Four N.Y. Counties |
| a. Principal's perception: who chooses program | | |
| Teacher alone . . . . . | 21% | 73% |
| Other . . . . . | 79 | 27 |
| | 100 (80) | 100 (66) |
| b. Teacher's perception: who chooses program | | |
| Teacher alone . . . . . | 38% | 73% |
| Other . . . . . | 62 | 27 |
| | 100 (80) | 100 (66) |

In the four New York counties, about the same proportion of teachers and principals say the teachers alone decide, but in New York City the teachers attribute more power to themselves than the principals attribute to the teachers. That is, 38 per cent of the teachers say they alone decide what program to watch, but the principals of about half that many teachers say the teacher alone decides. Table 18 also repeats the finding noted earlier that New York City schools are much more centralized than the schools in the other four counties.

The similarity of principals and teachers in Table 18 could hide a high rate of disagreement between individual teachers and their own principals. In Table 18A each teacher is classified by his principal's (or coordinator's) report and his own report of his degree of autonomy in the use of television.

Table 18A

Agreement of teachers and principals in their perceptions of control over television use

Number of watching teachers

| | New York City | | Four N.Y. Counties | |
|---|---|---|---|---|
| | Principal's response: who chooses program | | | |
| Teacher's response: who chooses program | Teacher alone | Other | Teacher alone | Other |
| Teacher alone . . . | 11 | 19 | 40 | 8 |
| Other . . . . . | 6 | 44 | 8 | 10 |

This table reveals a fairly high but not perfect agreement between the teachers and principals. In other words, the principals and teachers in any particular school usually agree on the degree of teacher autonomy. There is some disagreement, but it does not necessarily indicate that either the principal or teacher misperceives the situation, since a particular teacher

may be an exception to the general rule in his school. With this taken into account, the degree of agreement appears quite high.

Nevertheless, it would be interesting to see which types of teachers have or claim they have either more or less autonomy than their principals attribute to them. The numbers of teachers are too small to detect any but the largest differences that distinguish these teachers, and the only interpretable difference is that shown in Table 19.

Table 19

Teacher autonomy and age

| | Watching teachers: per cent who started teaching before 1950 |
|---|---|
| **New York City** | |
| Teacher and principal agree: | |
| Teacher decides alone . . . . | 40% (10) |
| Teacher does not decide alone . . . . . | 40% (43) |
| Teacher sees more autonomy . . | 65% (17) |
| Teacher sees less autonomy . . | (2/6) |
| **Four N.Y. Counties** | |
| Teacher and principal agree: | |
| Teacher decides alone . . . . | 45% (40) |
| Teacher does not decide alone . . . . . | 50% (10) |
| Teacher sees more autonomy . . | (3/8) |
| Teacher sees less autonomy . . | (4/8) |

It appears here that in the New York City schools, the teachers who see themselves as more autonomous compared to their principals' reports are older than the other teachers in these schools. One would expect the same effect to hold for degree level, but here the difference is much smaller. A teacher's age is more important than his degree level in determining his felt autonomy in a New York City school. The groups of teachers compared in Table 19 do not differ in any consistent way with respect to evaluations or use of classroom television.

What is the relationship of the principals' evaluations of television and the teachers' evaluations and behavior? Both teachers and principals were asked for evaluations, one of the usefulness of classroom television and the other of the quality of the Regents' programs. Table 20 shows the relationship between the responses of teachers and principals in the same schools. Generally speaking, the relationships are not large. There is no correlation on either item within New York City; in the other schools, there is some agreement on the usefulness of television but actual disagreement on the quality of the educational programs.

Each principal and teacher was also asked if his estimation of the value of television had changed since the time television was first used in his schcol. In spite of the negative results above, it might be supposed that where the principals raised their estimations of the value of television, the teachers' evaluations would also improve. Table 21 shows that the differences are in the expected direction but are not large enough to even approach statistical significance.

Table 20

Relation of teachers' and principals' evaluations

Per cent of watching teachers

| | New York City | | | Four N.Y. Counties | | |
|---|---|---|---|---|---|---|
| | Principal's opinion on usefulness of TV | | | | | |
| Teacher's opinion on usefulness of TV | Useful, emphatic | Useful | Useful, but... | Useful emphatic | Useful | Useful, but... |
| Useful, emphatic . . . . . | 21% | 37% | 36% | 15% | 21% | 9% |
| Useful . . . . . | 43 | 41 | 28 | 69 | 44 | 36 |
| Useful, but...; not very . . | 36 | 22 | 36 | 15 | 34 | 55 |
| | 100 | 100 | 100 | 99 | 99 | 100 |
| Total number of cases | (14) | (59) | (25) | (13) | (53) | (11) |
| | Principal's evaluation of Regents' programs | | | | | |
| Teacher's evaluation of Regents' programs | Good | Good, but... | | Good | Good, but... | |
| Good . . . . . | 75% | 77% | | 62% | 77% | |
| Good, but... . . . . | 25 | 23 | | 38 | 23 | |
| | 100 (48) | 100 (40) | | 100 (45) | 100 (30) | |

Table 21

Teachers' and principals' changes of attitude

Per cent of watching teachers

| | New York City | | | Four N.Y. Counties | | |
|---|---|---|---|---|---|---|
| | Principal: has evaluation of TV changed | | | | | |
| Teacher: has evaluation of TV changed | Better | Same | Worse | Better | Same | Worse |
| Better now . . . . . | 42% | 31% | 46% | 55% | 39% | (4) |
| Same . . . . . | 54 | 60 | 54 | 40 | 54 | (2) |
| Worse now . . . . . | 4 | 9 | — | 5 | 7 | (1) |
| | 100 | 100 | 100 | 100 | 100 | --- |
| Total number of cases | (24) | (58) | (13) | (20) | (46) | (7) |

Rather than simply looking at correlations between the attitudes of teachers and principals, another method of assessing mutual influence is possible. If the evaluations of principals do affect the teachers' evaluations, we would expect that teachers would raise their evaluation of TV in schools where the principals give highly favorable evaluations of it.

In Table 22a., we see that even this relationship does not appear. However, the reverse does hold (Table 22b.): principals tend to raise their evaluations of television in schools where the teachers have positive attitudes. Though this finding was not expected, it is easy to explain -- principals have little direct contact with television and therefore must form their opinion on the basis of the experiences and evaluations of their teachers. The relationship shown here is more surprising when one considers that each principal has contact with many teachers and the influence of any one teacher could not be very great. For the relationship in Table 22b. to be as large as it is, there must be some agreement among the teachers in any one school as to their evaluations of television.

Table 22

Mutual effects of teachers' and principals' opinions

Per cent of watching teachers

| | New York City | | | Four N.Y. Counties | | |
|---|---|---|---|---|---|---|
| | Principal's evaluation of TV | | | | | |
| a. Teacher: has evaluation of TV changed | Useful, emphatic | Useful | Useful, but... | Useful emphatic | Useful | Useful, but... |
| Better now | 29% | 38% | 30% | 23% | 50% | 36% |
| Same | 64 | 55 | 63 | 62 | 48 | 36 |
| Worse now | 7 | 7 | 7 | 15 | 2 | 27 |
| | 100 | 100 | 100 | 100 | 100 | 99 |
| Number of cases | (14) | (58) | (27) | (13) | (50) | (11) |

| | Teacher's evaluation of TV | | | | | |
|---|---|---|---|---|---|---|
| b. Principal: has evaluation of TV changed | Useful, emphatic | Useful | Useful, but... | Useful emphatic | Useful | Useful, but... |
| Better now | 31 | 26 | 21 | 64 | 16 | 24 |
| Same | 56 | 60 | 64 | 29 | 78 | 60 |
| Worse now | 13 | 14 | 14 | 7 | 5 | 16 |
| | 100 | 100 | 99 | 100 | 99 | 100 |
| Total number of cases | (32) | (35) | (28) | (14) | (37) | (25) |

Now we come to the effects of the principals' attitudes on the teachers' behavior. Table 23 shows a strong relationship: in schools where the principal has a favorable evaluation of the usefulness of television, the teachers watch

more programs and watch more regularly. This is true even in the New York City schools, where the relationship could not be due to a correlation between the evaluations of the teachers and the principals. The more likely explanation is that the principals' evaluations of television influence the teachers' viewing habits, but the opposite effect may also be operating, viz. that principals change their evaluations of television in accordance with the extent of its use in their schools. With the data available it is not possible to determine the relative strengths of these two processes.

Table 23

Effect of principals' evaluations of TV on teachers' viewing behavior

| | Per cent of watching teachers | | | | | |
|---|---|---|---|---|---|---|
| | New York City | | | Four N.Y. Counties | | |
| | Principal's evaluation of TV | | | | | |
| | Useful, emphatic | Useful | Useful, but... | Useful, emphatic | Useful | Useful but... |
| a. Number of programs usually viewed | | | | | | |
| One | 43% | 54% | 67% | 62% | 53% | 82% |
| Two | 43 | 34 | 30 | 15 | 34 | 9 |
| Three or more | 14 | 12 | 4 | 23 | 13 | 9 |
| | 100 | 100 | 101 | 100 | 100 | 100 |
| b. Have you watched regularly | | | | | | |
| Yes | 79 | 73 | 63 | 77 | 70 | 50 |
| No | 21 | 27 | 37 | 23 | 30 | 50 |
| | 100 | 100 | 100 | 100 | 100 | 100 |
| Number of cases | (14) | (59) | (27) | (13) | (53) | (11) |

We checked the effects of the principals' evaluations of the Regents' programs on the teachers' watching behavior, but no correlation was found, even though there is in both groups a high correlation between the evaluation of the Regents' programs and the usefulness of TV. This suggests that the quality of the programs available is not as important a determinant of the use of television as is a favorable orientation toward classroom television generally.

## Conclusion

This study has attempted to describe the ways that television use is organized in elementary schools and to outline some relationships between the various elements of the schools and their use of television. First we focussed on the role of TV coordinator, which we found to be related to the characteristics of the school system, the school, the principal and the teachers. The influence of the coordinators on the attitudes and behavior of the teachers was examined as well as the characteristics of the coordinators themselves.

In the second section we established that the coordinator does not restrict the autonomy of the teachers in deciding whether to use television and which programs to watch. The teachers are given more autonomy in schools with better-educated teachers, but within a school, the age of a teacher is more likely to affect his feelings of autonomy than his degree level.

In the last section we indicated that there is evidence that teachers' evaluations of the usefulness of television affect the evaluations of principals more than the principals influence the teachers. The teachers' watching behavior, however, is related to the principals' evaluations of the usefulness of television.

# II.

# THE CLASSROOM USE OF TELEVISION IN ELEMENTARY SCHOOLS IN THE NEW YORK AREA, IN RELATION TO CERTAIN SOCIAL, ECONOMIC, AND DEMOGRAPHIC ATTRIBUTES OF SCHOOL DISTRICTS

## Introduction

### Purpose

The classroom use of educational television in elementary schools in the New York City area has been found by Lenihan and Menzel* to relate to a variety of specific factors, all of which it seems possible to categorize under but three general headings:

1. The content of programs,
2. The availability of programs (i.e., quality of reception, number and location of television sets, scheduling of programs), and
3. The "audio-visual climate" of the individual school (i.e., the attitudes of individual superintendents, principals, and teachers concerning the use of audio-visual teaching aids).

The study to be reported on here follows from the Lenihan-Menzel study, but at a more general level of inquiry. Whereas their concern was with the attitudes and practices of school personnel themselves, ours is with the broader question of whether the more specific determinants of classroom use of television found by Lenihan and Menzel might not themselves have been conditioned by certain more general attributes of the school districts involved. However important individual teachers' and principals' decisions may be, these

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*Kenneth J. Lenihan, Herbert Menzel, and Sydney S. Spivack, Utilization of Regents Educational Television Broadcast Programs, The University of the State of New York, the State Educational Department (Albany, New York), September 1963.

will, of necessity, be made within a framework defined, at least in part, by more general conditions. The task we set ourselves in this study, therefore, was to ascertain whether there is any relationship between the social-economic-demographic characteristics of a city or town and the use made of educational television in its public elementary schools.

## The Data

Data for this study are of two types: (1) reworked materials from the questionnaires used in the Lenihan-Menzel study, and (2) statistics from the U.S. 1960 Census of Population. To use these two types of data in conjunction with each other it was necessary to equate school districts with geographical units as found in the census. This was done by reference to various state publications on school divisions. In some instances this required no adjusting: census units corresponded perfectly to school districts. But in others it was necessary to add two or more districts together to achieve correspondence with a census division, while in still others it was so difficult to equate the two that the school district had to be omitted altogether from the study.

It was mainly because of this inability to equate census with school divisions that we omitted the whole of New York City from the study, along with a few districts in both Connecticut and New Jersey. In all, our study refers to 129 school districts in New Jersey and 23 in Connecticut. The additional omission of parochial schools was decreed by the fact that the organization of these schools leaves little room for local, or even parental, determination of school policy. This lack of autonomy was sufficient grounds, also, for excluding the New York City schools. High schools were excluded because of the differences in needs and activities separating them from elementary schools.

For our purposes the Lenihan-Menzel data on individual schools were reworked and combined in such a way as to provide information for the smallest population census unit of any relevance: whether town, township, or census tract. This way it was possible to relate data obtained from the individual school questionnaires to socio-economic data obtained from the census.

The questionnaire data used were as follows:

1. Watching category (i.e., whether the school had a television set, and the extent of use made of it)
2. School enrollment
3. Number of teachers
4. Number of television sets
5. Quality of television reception
6. Source of television sets (i.e., whether supplied by funds from the school system, PTA, etc.)
7. Programs viewed

Information derived from the census consists of the following:

1. Dependence ratio = $\frac{\text{Population under age 18}}{\text{Population ages 18-64}}$
2. Per cent population change, 1950-1960
3. Per cent of the population nonwhite
4. Per cent of the population of foreign stock (i.e., either foreign-born or with at least one parent foreign-born)
5. Per cent of school children enrolled in nonpublic schools
6. Per cent women 14+ years of age in the labor force
7. Per cent of employed persons (male + female) employed in manufacturing
8. Median family income
9. Per cent of all households with annual incomes below $3,000
10. Per cent of all households with annual incomes of $10,000 or over
11. Per cent of persons 25+ years of age with less than four years of high school
12. Per cent of employed males in professional or managerial occupations
13. Per cent of employed males in white-collar occupations
14. Total population of the district
15. Fertility ratio = $\frac{\text{children 0-4 years of age}}{\text{women 15-44 years of age}}$
16. Non-worker ratio = $\frac{\text{population not in the labor force}}{\text{population in the labor force}}$
17. Population 5-14 years of age

The census publications from which these data were derived are as follows:

A. U.S. Census of Population: 1960. Number of Inhabitants, Final Report PC(1)-A
B. U.S. Census of Population: 1960. General Population Characteristics, Final Report PC(1)-B
C. U.S. Census of Population: 1960. General Social and Economic Characteristics, Final Report PC(1)-C
D. U.S. Census of Population and Housing: 1960. Census Tracts, Final Report PHC(1), tracts numbers 19, 67, 91, 105, 108, 114, 145, 151
E. U.S. Census of Population: 1950. Vol. III, Census Tract Statistics, Chapter 1.

Following is a list of specific sources of the census data utilized:

| Attribute (by number) | Census source used (by letter) | Table |
|---|---|---|
| 1. | B | 13 |
| | D | P-1, P-2 |
| 2. | A | 5, 7, 8 |
| | B | 13 |
| | D | P-1 |
| | E | 1 |
| 3. | B | 13, 25 |
| | D | P-1 |
| 4. | C | 34, 81 |
| | D | P-1 |
| 5. | C | 73 |
| | D | P-1 |
| 6. | C | 33, 34, 73 |
| | D | P-3 |
| 7. | C | 33, 34, 75 |
| | D | P-3 |
| 8. | C | 33, 34, 76, 81 |
| | D | P-1 |
| 9. | C | 33, 34 |
| | D | P-1 |
| 10. | C | 33, 34 |
| | D | P-1 |

| Attribute (by number) | Census source used (by letter) | Table |
|---|---|---|
| 11. | C | 73 |
| | D | P-1 |
| 12. | C | 74, 81 |
| | D | P-3 |
| 13. | C | 74, 81 |
| | D | P-3 |
| 14. | A | 5, 7, 8 |
| | D | P-1 |
| 15. | B | 13, 26 |
| | D | P-2 |
| 16. | C | 33, 34 |
| | D | P-3 |
| 17. | B | 20, 26 |
| | D | P-2 |

Limitations of the data

The findings reported on here are not without some limitations. As our analysis involved only 152 census units in all, we frequently had to work with numbers of a size too small for any assurance of statistical reliability. However, by judiciously combining categories, and looking for consistency in the various relationships, it was hoped at least in part to minimize the likelihood of bias arising from this paucity of cases.

A second limitation, and one likely to be more serious than the first because it admits of no countervailing adjustments, exists in the fact that the schools used in the analysis might not have been representative of those in their districts. Although no district was included in the analysis unless at least half of its schools had reported -- and that half containing at least half of the total pupil population of the district's public schools -- the frequent combination of residential segregation along socio-economic lines with

geographic determination of the pupils to be served by individual schools could have given rise to a fair measure of unrepresentativeness. Fortunately, however, this seems not to have been the case in this particular instance. In an attempt to assess the importance of this second limitation, we eliminated the 23 small 2-school districts for which there was information on only one school and recalculated those summary measures which, when calculated for the total number of units in the study, had suggested the existence of a fair degree of relationship between one or another socio-economic attribute and the classroom use of television. The result was gratifyingly negative; despite changes in individual percentages, there was no change in either the character or direction of the relationships found in the previous calculation. It seems reasonable to conclude, therefore, that, taken as a whole, the schools for which we have information are reasonably representative of the schools in the districts under study -- at least with respect to the types of relationships with which our analysis is concerned.

## Findings

There are three dependent variables in this analysis: (1) number of teachers per television set in the public schools of the community, (2) the extent of use of television in the classroom, and (3) the types of programs viewed.

### Number of teachers per television set

In this section we are interested simply in the extent of possession of television sets, since the availability of a set determines the possibility of viewing. In order to determine the extent of possession we had to solve two major problems: (1) how to allow for the quality of reception in each

school district, and (2) how to control for the varying sizes of the districts, and consequently the varying numbers of schools. If reception were nonexistent, or exceedingly poor, there would be no reason for the schools in a community to acquire sets, and it would be misleading to include such communities in our analysis of extent of ownership. Secondly, we could not use an absolute measure of the extent of possession of sets, such as the number of sets in a school district, but rather had to develop a measure which was relative to the size of the district (i.e., the number of schools in the district), representing its potential for possession of sets.

Let us consider the problem of size first. We decided that the number of teachers per television set would give us a meaningful index of the extent of possession, and at the same time "control" for the size of the community and the approximate number of pupils or schools. The Teacher-Set Ratio, then, is our basic measure of the extent of possession. Those districts with tolerably good reception, but without any TV sets in their schools, are excluded from our main analysis. (Included in the group without TV are some districts having only one school and some having several schools.) We cannot consider the range from districts with a very low teacher-set ratio down to those with no set at all as a strict continuum, and if we had included "no set" districts of varying sizes in our analysis, we might have distorted or buried findings to some unknown extent through a statistical artifact. Consequently, in the summary table which accompanies this section of the analysis we have tabulated and percentaged "no set" schools separately to the far right of the page, including in our chi square tests of significance only the districts possessing sets -- those for which we could establish the teacher-set ratio. Comparisons may be made by the reader between communities with no sets and those with high

teacher-set ratios, but we will not ourselves discuss this topic, since we cannot judge the extent of the bias introduced by varying sizes of districts.

To allow for differences in quality of reception we excluded from our tabulations and analysis all districts in which there was no reception, as well as all districts in which reception was "poor" or "poor-fair." By so doing we lost 23 cases, in addition to the 18 cases of "no answer" regarding reception, or a total of 41 cases. Of this total, 24 possessed no TV sets, and so were of secondary importance. By the exclusions we hoped to eliminate most of the bias that might result regarding TV purchase as a result of marked differences in reception. The following table presents the distribution of the total sample of districts, cross-tabulated for quality of reception and for teacher-set ratio. We have boxed the cells of the table delimiting the districts used in our analysis, including the communities with tolerable reception but no sets. Among the districts included in our analysis there is no significant relationship between quality of reception and teacher-set ratio. (There are no significant deviations from the "expected" distribution for those cells used in our analysis. Given the small number of cases, the variation, such as it is, can be explained statistically by chance alone.)

Teacher-set ratio

| Quality of reception | Under 22 | | 23-34 | | 35+ | | No set | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % |
| No reception | 1 | 10 | 1 | 10 | 5 | 50 | 3 | 30 | 10 | 100 |
| Poor | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 100 | 7 | 100 |
| Poor-fair | 3 | 50 | 1 | 17 | 1 | 17 | 1 | 17 | 6 | 101 |
| Fair | 10 | 37 | 8 | 29 | 5 | 19 | 4 | 15 | 27 | 100 |
| Fair-good | 14 | 52 | 5 | 19 | 6 | 22 | 2 | 7 | 27 | 100 |
| Good | 23 | 40 | 14 | 25 | 9 | 16 | 11 | 19 | 57 | 100 |
| Sub-total | 47 | 42 | 27 | 24 | 20 | 18 | 17 | 15 | 111 | 100 |
| No answer | 3 | 17 | 0 | 0 | 2 | 11 | 13 | 72 | 18 | 100 |
| TOTAL | 54 | 36 | 29 | 14 | 28 | 18 | 41 | 27 | 152 | 100 |

The summary table for this section of our analysis cross-tabulates 94 school districts, ordered according to a three-level distribution for the teacher-set ratio, plus the 17 cases of "no set" -- a total of 111 cases. There are 13 independent variables in the cross-tabulations, representing attributes of communities, or of persons or families in the communities. For each of the independent variables we sought to measure relationship to the dependent variable, teacher-set ratio, using the chi square test of significance to supplement the conclusions to be drawn from the percentage distributions. In the table we have presented the independent variables in their chi square order of significance from .001 down to those which were not statistically significant, but whose distributions had clear directions consistent with those for other significant variables with which we felt they were associated. We excluded from this table four variables for which we found no significant relationship

with the extent of set possession. These four appear in Appendix Table A, since it is often important to know which factors included in a study are irrelevant, and consequently may be disregarded safely.

What do we conclude from the teacher-set cross-tabulations? Very simply, we conclude that there is one outstanding determinant of the extent of TV set possession, the financial resources of the schools, or the social system, in any given district. Directly or indirectly, all of the significant variables are indicators of resources, the extent of which apparently determines the decision of whether or not to purchase the educational innovation of television sets.

But the resources of schools or school systems may be greater or lesser in a number of ways, as the two most significant attributes of school districts in relation to the extent of TV set purchase well illustrate. Where the fertility rate is low, where there are few children relative to the adult population, and in consequence relative to the total of productive persons in the community, the demands placed upon the community by the public schools are also relatively modest, and the community can afford to support such "luxuries" as educational TV. The relative size of the population of children, our first demographic variable, was one of the two most significant determinants of the extent of TV set purchase.

On the other hand, demands upon community resources by the public schools may be lessened in a very different manner. If the educational burden is shared between public and non-public schools, irrespective of the proportions of children in the population, the public schools may be in a better position to afford educational non-essentials, such as TV sets. The proportion of children attending non-public schools emerges then as the second, and equally significant, variable positively associated with the extent of set purchase.

Relationship between various attributes of school districts and the "teacher-set ratio," or "no set"

(districts with at least "fair" or better television reception)

| | Teacher-set ratio | | | Probability of significance based on $X^2$ test | No set |
|---|---|---|---|---|---|
| | Under 22 % | 23-34 % | 35+ % | | % |
| Per cent of school children enrolled in non-public schools: | | | | | |
| 20%+ | 81 | 56 | 36 | .001 | 50 |
| Fertility ratio: | | | | | |
| Under 420 | 54 | 35 | 11 | .001 | 12 |
| Population increase, 1950-1960: | | | | | |
| Under 38% | 56 | 44 | 26 | .01 | 13 |
| Per cent of all persons 25+ years of age with less than 4 years of high school: | | | | | |
| Under 43% | 47 | 27 | 16 | .02 | 41 |
| Per cent foreign stock: | | | | | |
| 38%+ | 40 | 19 | 16 | .05 | 18 |
| Per cent of families with $10,000 in income: | | | | | |
| 29%+ | 60 | 38 | 32 | .05 | 53 |
| Median family income: | | | | | |
| $7,500+ | 67 | 42 | 42 | almost .05 | 53 |
| Per cent of families with $3,000 or less in income: | | | | | |
| Under 9% | 76 | 50 | 63 | almost .05 | 76 |
| Dependency ratio: | | | | | |
| Under 63 | 62 | 56 | 32 | almost .05 | 29 |
| Non-worker ratio: | | | | | |
| Under 148 | 63 | 54 | 32 | almost .05 | 35 |
| Per cent white-collar workers: | | | | | |
| 47%+ | 56 | 42 | 37 | * | 59 |
| Per cent professional and managerial: | | | | | |
| 40%+ | 51 | 42 | 42 | * | 47 |
| Per cent of women in the labor force: | | | | | |
| 33%+ | 62 | 58 | 53 | * | 47 |

*No significant, but in direction consistent with findings for related variable

On the other hand, demands upon community resources by the public schools may be lessened in a very different manner. If the educational burden is shared between public and non-public schools, irrespective of the proportions of children in the population, the public schools may be in a better position to afford educational non-essentials, such as TV sets. The proportion of children attending non-public schools emerges then as the second, and equally significant, variable positively associated with the extent of set purchase.

A third demographic variable, change in population size, 1950-1960, was also associated with the extent of television set purchase. Low increases in population were associated with extensive possession of sets at the .01 probability level. If the over-all population rose very slightly, the increase in the number of school children would rise modestly as well. A low fertility ratio would certainly account for lack of marked increases to a considerable extent, but we are probably justified in assuming that there also was a low rate of in-migration for such relatively static communities -- static, with regard to population. The effect of a low rate of increase in the children to be publicly educated would be to preclude any very great pressures for large scale expansion of facilities. All other factors being equal, there would be larger sums of money available for discretionary educational purchases, such as TV sets, than would be the case if the bulk of the school funds were of necessity spent on new schools and the expansion of existing ones, additional teacher salaries, and so forth. We also found that large increases in population, 1950-1960, were associated with low proportions of children attending non-public schools. Presumably, the non-public schools were not able to expand very rapidly, and the public schools perforce had to assume the major share of the student increase, with consequent strains upon their resources. This relationship was significant at the .01 probability level.

Another measure of the resources of the public schools is the basic economic position of the community. Our indicator of this economic position is family income, for which we have three variant measures -- median family income, the proportion of the very poor (under $3,000 annual family income), and the proportion of the well-to-do ($10,000 or more family income per year). None of these attributes is as significant for the extent of TV set purchase as the first three -- the fertility ratio, the proportion of non-public school children, and population change -- but all three are consistent in their positive relationship to set purchase. The better the relative financial position of the families in a community, the greater the chances of extensive set purchase. The proportion of families with $10,000 or more yearly income proved significant at .05, and the other two income measures very nearly reached this level. In brief, in a community of relatively prosperous families, the school system is also relatively well off, and may consider such discretionary purchases as TV sets.

So far we have discussed six of the thirteen attributes tabulated in our summary table. The remaining seven attributes fall into two general classes: (1) attributes which are substantively very close to one or more of the six already discussed, and (2) attributes which serve to further specify the basic processes or conditions within the community which operate to foster set purchases. For example, the dependency ratio, like the fertility ratio, is a measure of the relative size of the educational burden upon the community -- the relative size of the population of children to be educated. On the other hand, per cent foreign stock, positively associated with extensive set purchase, tells us something additional about the situation in which there are large proportions of children attending non-public schools. The non-public

schools in question are parochial ones, and apparently, where they are prominent there are many first or second generation Roman Catholics.

The "grouping" of attributes which we have just indicated is largely inferential, as we have recounted it so far, but we can test the validity of our judgements by measuring statistically the degree of relatedness of any two variables which we infer are closely associated, either as being substantively very close, or else being indicators of particular aspects of a more general community characteristic. All ten pairs are significantly related at the very high probability level of .001.

Both a high proportion of white-collar workers and a high proportion in professional and managerial occupations are strongly associated with a high proportion of families with incomes of $10,000 or over, which in turn is closely associated with extensive purchase of sets. The two occupational variables are also mutually associated at a highly significant level. Briefly, what we have gained is a more amplified description of the attributes of the persons and families in affluent communities where set purchase is most likely to occur.

This descriptive elaboration is carried a step further when we consider the educational attainment of the persons in set-possessing districts. High proportions of high school graduates were associated at the .02 probability level with extensive TV set possession, and high proportions of graduates are also associated with a high proportion of families with incomes of $10,000 or more, a high proportion of persons employed in white-collar occupations, and a high proportion of professionals and managers. Summarizing all the socio-economic interrelationships we have mentioned, we may characterize the populations of communities purchasing sets extensively as having substantial

proportions of persons or families enjoying at once good incomes, responsible non-manual jobs, and relatively high levels of educational attainment. In this study, as in so many others, income, education, and occupation are closely associated.

The fertility and dependency ratios are closely related, and since they measure much the same thing, the relative public school educational burden the community faces, their mutual association simply adds consistency to the findings for the fertility ratio alone.

Two measures of the extent of employment (in turn indirect measures of the financial wealth of the community), the non-worker ratio and the per cent of women in the labor force, are also mutually associated, as well as being independently related to the extent of TV purchase. Where the proportion of non-workers is low more women tend to be employed, and where either or both of these conditions pertain, television sets tend to be numerous.

Our boldest inference, that regarding the association between a high proportion of foreign stock and a high proportion of children in non-public schools, is supported by the .001 chi square probability that the relationship which emerged when we cross-tabulated these two attributes was not a chance one.

Finally, we cross-tabulated the fertility ratio and the per cent population increase, 1950-1960. The over-all relationship between the two attributes was significant at the .001 level -- in 34 our of 35 instances a high fertility rate was associated with a large proportional population increase. On the other hand, however, where the fertility rate was low there were still many instances of large population increases -- fully 22 out of 55 cases, or about 40 per cent of the total. Inferentially, this supports our

earlier surmise that a considerable portion of population increase could be attributed to in-migration. A low level of such in-migration emerges, then, as an additional factor in limiting the burden placed on schools and school systems, and consequently conserving the resources available for discretionary educational expenditures, such as purchase of TV sets.

Extent of interrelationship between variables associated with television set purchase

| | Proportion of families with yearly incomes of $10,000 | | |
|---|---|---|---|
| | Under 29% | 29%+ | Probability of significance based on $X^2$ test |
| | % | % | |
| Proportion of employed in professional and managerial occupations: | | | |
| 40%+ | 0 | 100 | .001 |
| Proportion of employed in white-collar occupations: | | | |
| 47%+ | 9 | 91 | .001 |
| | Proportion of employed in professional and managerial occupations | | |
| | Under 40% | 40%+ | |
| Proportion of employed in white-collar occupations: | | | |
| 47%+ | 30 | 70 | .001 |
| | Fertility ratio* | | |
| | Under 420 | 420+ | |
| Dependency ratio: | | | |
| Under 63 | 86 | 33 | .001 |
| | Non-worker ratio | | |
| | Under 148 | 148+ | |
| Proportion of women in the labor force: | | | |
| 33%+ | 84 | 16 | .001 |
| | Proportion of children enrolled in non-public schools | | |
| | Under 20% | 20%+ | |
| Proportion of persons of foreign stock: | | | |
| 38%+ | 10 | 90 | .001 |

*Percentaged vertically

Extent of interrelationship between variables associated with television set purchase

(continued)

| | Proportion of persons who did not graduate from high school | | |
|---|---|---|---|
| | Under 43 | 43+ | Probability of significance based on $X^2$ test |
| | % | % | |
| Proportion of families with yearly income of $10,000 : | | | |
| 29%+ | 70 | 30 | .001 |
| Proportion of employed in white-collar occupations: | | | |
| 47%+ | 70 | 30 | .001 |
| Proportion of employed in professional and managerial occupations: | | | |
| 40%+ | 93 | 7 | .001 |
| | Fertility ratio* | | |
| | Under 420 | 420+ | |
| Population increase, 1950-1960: | | | |
| Under 67% | 60 | 3 | .001 |

*Percentaged vertically

It seems important to emphasize that the thirteen attributes are mutually very consistent in the story they tell us, and that, given the small number of cases in the analysis, the chi square probabilities of significance are very high. We feel confident, then, that these are indeed the "key" variables relating to the extent of set possession, given the scope of the present study.

To recapitulate and summarize very briefly, it is the extent of the resources of the schools, or school system, that determines set possession, and resources in turn are determined by: (1) the relative size of the child

population to be educated and the rate of increase in this population, (2) the extent to which non-public schools shoulder a portion of the educational burden, and (3) the relative wealth of the community, which is clearly mirrored by the various measures of family income, individual labor force status, occupational level, and educational attainment. All other findings are supplementary, however interesting, and merely amplify or further specify these basic relationships.

Extent of classroom use of television

Our measure of extent of use is the "watching score," which is the average number of programs viewed per pupil during the week of April 2-6, 1962, in the reporting schools in the district. For a district to have a "watching score" of 1.00, for example, on the average each pupil would have to have seen one program during the week under study. For analysis, district watching scores were subdivided into three categories: under .16, .16-.49, and .50 and over. With frequencies in these categories of 21, 22, and 16 districts, respectively, it can be readily seen that the classroom use of television in the schools responding to our inquiry was not of very great magnitude.

So far as the actual availability of television is concerned, the amount of viewing is, as one might expect, associated positively with higher pupil-set and teacher-set ratios. However, there is little or no connection between the amount of viewing (once there is at least some) and the quality of reception, though it must be remembered in this connection that only 4 out of the 59 districts with watching scores had reception judged to be "poor-fair" or worse.

Per cent districts with specified attributes, by watching score

| Attribute | Watching score: Under .16 | .16-.49 | .50+ | Probability of significance based on $X^2$ test |
|---|---|---|---|---|
| | % | % | % | |
| 1. Fertility ratio: 500+ | 25 | 19 | 0 | .10 |
| 2. Per cent in non-public schools: 25+ | 27 | 29 | 67 | .10 |
| 3. Per cent of foreign stock: 38+ | 30 | 35 | 56 | .25 |
| 4. Per cent employed in manufacturing: 39+ | 30 | 30 | 44 | .60 |
| 5. Median family income: | | | | |
| $8,300+ | 35 | 50 | 31 | |
| under $7,000 | 15 | 25 | 31 | |
| 6. Per cent population change: under 16 | 45 | 44 | 47 | |
| 7. Per cent non-white: 4.5+ | 20 | 50 | 19 | |
| 8. Per cent women in labor force: 37+ | 40 | 45 | 44 | |
| 9. Per cent households with incomes under $3,000: 9+ | 30 | 30 | 25 | Not statistically significant |
| 10. Per cent households with incomes of $10,000+: 38+ | 30 | 50 | 31 | |
| 11. Per cent persons 25+ years of age with under 4 years high school: | | | | |
| 58+ | 25 | 25 | 44 | |
| under 43 | 35 | 50 | 31 | |
| Number | 21 | 22 | 16 | |

As far as socio-economic attributes are concerned, only two may differentiate between the districts by extent of use of classroom television. Lower fertility ratios and higher proportions attending private school are associated with larger watching scores. All other socio-economic attributes seem to have little or no statistically significant relationships to the watching score.

There is no particular relationship between population size and extent of viewing. Our data suggest that among those districts making use of this medium it is the smaller districts, and not the larger, that are more likely to make the greater use:

Per cent in specified watching score categories, by population size

| | | Watching score | | | |
|---|---|---|---|---|---|
| Population | N | under .16 | .16-.49 | .50+ | Total |
| Under 7,000 | 15 | 20 | 40 | 40 | 100 |
| 7,000 - 18,999 | 17 | 47 | 29 | 24 | 100 |
| 19,000 | 27 | 37 | 41 | 22 | 100 |
| | 59 | | | | |

This tabulation, however, is not statistically significant* so that we must conclude that there is no relationship -- at least for our relatively small sample.

In this connection, the situation in Newark and Elizabeth, the two largest populations studied, is instructive. With watching scores of .11 and .97 respectively, Newark is in the lowest, and Elizabeth in the highest,

*Probability of significance based on chi square test is .30.

viewing category. Of the 29 reporting schools in Newark, 11 were without sets (and only one of these planned to get one within the following year), another 11 had sets and did not use them, while only seven had sets and used them. As though this were not enough variation, watching scores within the seven schools making use of television ranged from a low of .03 to a high of 1.67.

In Elizabeth, on the other hand, all 16 reporting schools had sets, and fully 15 of these made some use of them. But just as in Newark, there was considerable variation in individual school watching scores: from a low of .11 to a high of 3.17. Nor can this be attributed to differences in the number of sets, for 12 of the Elizabeth schools had only one (among which are to be found both the school with the highest watching score and the school with the lowest), three schools had two sets each, and only one had as many as three sets (the watching score of which was a relatively modest .42). As with the possession and mere use or non-use of a television set, so with the extent of that use: there is more room for variation in the large districts than in the small.

What may we infer from these relatively inconclusive findings? For one, the lower fertility ratios in combination with the higher proportions of students attending private schools may indicate that the public schools are in a relatively more favorable financial situation. This may ultimately lead to more watching via the provision of more television sets. Although there is an attempt made by the State of New Jersey to equalize the amounts of money available per student throughout the state, the state aid involved amounts to a very small proportion of the total expended per pupil in any particular district. A district with a relatively small proportion of its total population going to public schools, is in a better position to increase its per

pupil expenditure on public schools.

As Lenihan and Menzel found, a very important determinant of the extent to which a school will use television is the ease with which a teacher can get his class to a set. The differences in pupil-set and teacher-set ratios separating our three viewing levels are shown below, along with the pupil-teacher ratios:

Per cent of school districts with specified attributes, by extent of viewing (districts with watching scores)

| | Watching score | | | |
|---|---|---|---|---|
| | Under .16 | .16-.49 | .50+ | |
| 1. Pupil-set ratio: 600+ | 57 | 32 | 19 | P = .05 |
| 2. Teacher-set ratio: 23+ | 57 | 36 | 25 | P = .15 |
| 3. Pupil-teacher ratio: under 27 | 48 | 73 | 63 | P = .25 |

Further support for this conclusion is found in the fact that districts in the highest use category are substantially more likely than those in the lower two categories to have obtained their sets through purchase with school funds. Apparently, once the decision to obtain television sets is made, the presumably better financial positions of these districts, so far as school funds are concerned, make it possible to supply sets in quantities sufficient to permit a relatively high level of viewing. If the level still seems rather low, considering the number of pupil-viewings that were possible during the week studied, it would seem necessary to explain it by some condition other than the availability of sets.

Programs viewed

Science programs were far and away the most popular of those offered during the week of the study. Within each of the three watching score categories the proportion making at least some use of science programs was in excess of 90 per cent. The next most popular programs were those in English (almost all the viewings of which were of one program, "Tell Me a Story"), followed, in order, by "Fun at One" (a program for children in kindergarten and first grade that was by far the most popular single program of the week), social studies, mathematics, art and music, and last of all, with only 6 of the 59 viewing districts making any use of it, foreign language.

Per cent districts viewing specified programs, by watching score category

| Watching score | N | Program: Science | Math | English | Foreign language | Art and music | Social studies | Fun at One |
|---|---|---|---|---|---|---|---|---|
| Under .16 | 21 | 90 | 14 | 52 | 5 | 19 | 38 | 24 |
| .16-.49 | 22 | 91 | 36 | 82 | 9 | 32 | 32 | 68 |
| .50+ | 16 | 100 | 56 | 94 | 19 | 44 | 69 | 94 |

Apart from science, however, there was little unanimity in viewing patterns between districts categorized according to the amount of their viewing: i.e., whether low, medium, or high. As could be expected, those with the highest watching scores were the most likely to have viewed a particular program, and those with the lowest watching scores were the least likely. The three viewing categories were furthest apart in their use of programs on mathematics, and in their viewing of "Fun at One." They were most alike (and, at that, not very much alike) in their viewing of programs in English (mostly

"Tell Me a Story") and social studies.

Any program is more likely to have been seen in a larger than in a smaller school district, simply because the former has more schools than the latter. The inclusion of one school in a district which has viewed one program is enough to classify that entire district as having "viewed" the particular program. When we classify the districts by size we find that the following proportions viewed each of the types of programs:

| | Size of district | |
|---|---|---|
| | 19,000+ | Under 11,000 |
| Science | 93% | 91% |
| Mathematics | 44 | 22 |
| English | 89 | 70 |
| Foreign languages | 19 | 0 |
| Art and music | 52 | 9 |
| Social studies | 70 | 17 |
| "Fun at One" | 70 | 43 |

## Conclusions

The purpose of this research, based on reworked materials from the Lenihan-Menzel study in combination with data from the 1960 census of population, was to see whether the more specific determinants of the classroom use of television, as found by Lenihan and Menzel, might not themselves be related to certain more general socio-economic attributes of the various school districts concerned. Despite some limitations in the data, a number of socio-economic differences were found between districts subdivided with respect to the possession and use of sets. Having a set was generally associated with low public school enrollments relative to the adult population and to low population increases, as well as to a generally prosperous economic situation.

There was no indication that television was being used to overcome teacher shortages -- quite the contrary, in fact. But whether it was being used to overcome deficiencies in training or experience of teachers was something on which we had no evidence.

Once a district has television and makes some use of it, however, there are relatively few socio-economic attributes associated with the extent of that use. The fact that there are more sets for the number of pupils and teachers to be served in districts making more extensive use of television, together with the Lenihan-Menzel finding that teachers are much more willing to use television if doing so does not involve leaving the classroom, or getting together with other classes to share a single set, suggests that budgetary matters may be an important determinant here. It would seem that the school budgetary situation, in turn, would be more favorable in those districts where, first, a relatively small proportion of the total population had to be served by the public school system (i.e., districts with lower fertility ratios, lower dependency ratios, and with higher proportions attending non-public schools), and where, second, there was a relatively large proportion of upper socio-economic adults, able to shoulder substantial educational tax levies.

If a region of the country is contemplating making available broadcast television for classroom use, certain predictions of its use in elementary schools could be made on the basis of the findings in this and the Lenihan-Menzel study. Socio-economic attributes of individual school districts seem to be important mainly so far as they affect the financial basis of the public school. Schools in districts where the individual taxpayer will be relatively little affected, financially, by the decision to buy one or more television sets would seem to be the most likely consumers of this type of

teaching aid. Other district characteristics appear of slight relevance alongside this one. The most extensive use would be in those schools where every classroom was equipped with a set. Yet, even here, we should expect individual variation, both in the extent of use and in the programs viewed. Quite apart from the availability of television sets, or the content of the programs, the Lenihan-Menzel findings show a remarkable degree of variation in use resulting from the attitudes of school personnel themselves. The use of educational television depends on much more than simply the ability or willingness of school boards to furnish their classrooms with receiving apparatus, though each of these is itself an important determining element.

## Appendix Table A

Attributes of school districts which were unrelated to the extent of possession of television sets (no indication of relationship by the chi square test of significance -- and no apparent "direction" for the distributions)

| | Teacher-set ratio | | | |
|---|---|---|---|---|
| | Under 22 % | 23-34 % | 35+ % | No set |
| Total population: 11,000+ | 57 | 44 | 53 | 24 |
| Population ages 5-14: 2,500+ | 49 | 37 | 55 | 76 |
| Proportion non-white 1960: 2%+ | 48 | 52 | 47 | 29 |
| Per cent of all employed persons in manufacturing: 39%+ | 38 | 23 | 37 | 29 |